

111TH CONGRESS
1ST SESSION

H. R. 3029

To establish a research, development, and technology demonstration program to improve the efficiency of gas turbines used in combined cycle power generation systems.

IN THE HOUSE OF REPRESENTATIVES

JUNE 24, 2009

Mr. TONKO introduced the following bill; which was referred to the Committee on Science and Technology

A BILL

To establish a research, development, and technology demonstration program to improve the efficiency of gas turbines used in combined cycle power generation systems.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. HIGH EFFICIENCY GAS TURBINES.**

4 (a) IN GENERAL.—The Secretary of Energy shall
5 carry out a multiyear, multiphase program of research, de-
6 velopment, and technology demonstration to improve the
7 efficiency of gas turbines used in combined cycle power
8 generation systems and to identify the technologies that

1 ultimately will lead to gas turbine combined cycle effi-
2 ciency of 65 percent.

3 (b) PROGRAM ELEMENTS.—The program under this
4 section shall—

5 (1) support first-of-a-kind engineering and de-
6 tailed gas turbine design for utility-scale electric
7 power generation, including—

8 (A) high temperature materials, including
9 superalloys, coatings, and ceramics;

10 (B) improved heat transfer capability;

11 (C) manufacturing technology required to
12 construct complex three-dimensional geometry
13 parts with improved aerodynamic capability;

14 (D) combustion technology to produce
15 higher firing temperature while lowering nitro-
16 gen oxide and carbon monoxide emissions per
17 unit of output;

18 (E) advanced controls and systems integra-
19 tion;

20 (F) advanced high performance compressor
21 technology; and

22 (G) validation facilities for the testing of
23 components and subsystems;

1 (2) include technology demonstration through
2 component testing, subscale testing, and full scale
3 testing in existing fleets;

4 (3) include field demonstrations of the devel-
5 oped technology elements so as to demonstrate tech-
6 nical and economic feasibility; and

7 (4) assess overall combined cycle system per-
8 formance.

9 (c) PROGRAM GOALS.—The goals of the multiphase
10 program established under subsection (a) shall be—

11 (1) in phase I—

12 (A) to develop the conceptual design of ad-
13 vanced high efficiency gas turbines that can
14 achieve at least 62 percent combined cycle effi-
15 ciency on a lower heating value basis; and

16 (B) to develop and demonstrate the tech-
17 nology required for advanced high efficiency gas
18 turbines that can achieve at least 62 percent
19 combined cycle efficiency on a lower heating
20 value basis; and

21 (2) in phase II, to develop the conceptual de-
22 sign for advanced high efficiency gas turbines that
23 can achieve at least 65 percent combined cycle effi-
24 ciency on a lower heating value basis.

1 (d) PROPOSALS.—Within 180 days after the date of
2 enactment of this section, the Secretary shall solicit pro-
3 posals for conducting activities under this section. In se-
4 lecting proposals, the Secretary shall emphasize—

5 (1) the extent to which the proposal will stimu-
6 late the creation or increased retention of jobs in the
7 United States; and

8 (2) the extent to which the proposal will pro-
9 mote and enhance United States technology leader-
10 ship.

11 (e) COST SHARING.—Section 988 of the Energy Pol-
12 icy Act of 2005 (42 U.S.C. 16352) shall apply to an award
13 of financial assistance made under this section.

14 (f) LIMITS ON PARTICIPATION.—The limits on par-
15 ticipation applicable under section 999E of the Energy
16 Policy Act of 2005 (42 U.S.C. 16375) shall apply to finan-
17 cial assistance awarded under this section.

18 (g) AUTHORIZATION OF APPROPRIATIONS.—There
19 are authorized to be appropriated to the Secretary for car-
20 rying out this section \$65,000,000 for each of fiscal years
21 2011 through 2014.

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